

THE ORCHID GENERA *ONCIDIUM* SW. AND  
*TOLUMNIA* RAF. IN FLORIDA

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ABSTRACT

The current taxonomic, ecological, and distributional statuses of the genera *Oncidium* Sw. and *Tolumnia* Raf. in Florida are discussed. Descriptions and a key to the three species, *O. floridanum*, *O. undulatum*, and *T. bahamense*, are included. *Oncidium undulatum* is neotypified and *O. carthagenense* is excluded from the flora of Florida.

Key Words: *Oncidium*, *Tolumnia*, *O. altissimum*, *O. bahamense*, *T. bahamense*, *O. carthagenense*, *O. ensatum*, *O. floridanum*, *O. luridum*, *O. undulatum*, *O. variegatum*, Orchidaceae, Florida

INTRODUCTION

Four species of *Oncidium* Sw. have been reported from Florida (Ames, 1924; Small, 1933; Correll, 1950; Luer, 1972; Long and Lakela, 1976): *Oncidium bahamense* Nash ex Britt. & Millsp.; *Oncidium carthagenense* (Jacq.) Sw.; *Oncidium floridanum* Ames; and *Oncidium luridum* Lindl. Small (1913b, 1933) reported the last of these species as *O. undulatum* (Sw.) Salisb., while Beckner (1964) incorrectly reported it as *O. cosymbeforum* Morren, a synonym of *O. luridum*. *Oncidium luridum* is a central American species, but the name has been misapplied to Florida and Caribbean populations of what is correctly *Oncidium undulatum* (Sw.) Salisb., as reported by Small (1913b, 1933). *Oncidium bahamense* has been removed from the genus *Oncidium* and placed in the genus *Tolumnia* Raf. (Braem, 1986). *Oncidium carthagenense*, erroneously included by Small as part of the flora of Florida, is excluded.

As a result of these changes, the genus *Oncidium* in Florida is now represented by two species, *O. floridanum* and *O. undulatum*, and the genus *Tolumnia* is represented by one species, *T. bahamense* (Nash ex Britt. & Millsp.) Braem.

KEY TO THE SPECIES OF *ONCIDIUM* AND  
*TOLUMNIA* IN FLORIDA

1. Pseudobulbs inconspicuous, poorly developed; leaves triquetrous, margin serrulate; lateral sepals connate nearly to apex  
..... 3. *Tolumnia bahamense*

- 1. Pseudobulbs large, compressed; leaves conduplicate to flat, margin entire; lateral sepals free ..... 2
- 2. Leaves coriaceous, narrowly linear-oblong to ligulate, arising from apex and surrounding sheaths, apically to three-leaved ..... 1. *Oncidium floridanum*
- 2. Leaves coriaceous and rigid, broadly oblong-elliptic to linear-elliptic, solitary leaf at apex ..... 2. *Oncidium undulatum*

DESCRIPTIONS AND DISCUSSION

- 1. ***Oncidium floridanum*** Ames, Sched. Orch. 7: 13. 1924. Figure 1. TYPE: Florida, Dade Co., *Eaton 957* (HOLOTYPE: AMES).

Plants terrestrial, epilithic or epiphytic, to 1.45 m tall. Roots numerous, thick, canescent to velamentous. Rhizome short, stout, creeping or ascending, enclosed by scarious imbricating sheaths. Pseudobulbs clustered, oblong to ovate, compressed, ancipitous, to 1.4 dm long, 5 cm wide, partially enveloped by 3–6 distichous leaf-bearing sheaths, with 1–3 apical leaves. Leaves coriaceous, narrowly linear-oblong to ligulate, subobtuse to acute, to 1.05 m long, 2.5 cm wide. Peduncle slender, suberect, distantly several sheathed. Inflorescence lateral, to 1.42 m tall, racemose to paniculate above, to 85-flowered. Floral bracts ovate to lanceolate, acute to acuminate, to 8 mm long, 2 mm wide. Ovary pedicellate, slender, to 2.6 cm long. Sepals yellow with brown spots, lanceolate to elliptic, acute, basally clawed to attenuate, concave, the margins undulate, to 1.8 cm long, 4 mm wide. Petals yellow with brown spots, ovate to elliptic, acute, basally clawed, the margins undulate, to 1.4 cm long, 5 mm wide. Labellum three-lobed, yellow, to 1.4 cm long, 9 mm wide, the lateral lobes basal, orbicular, obtuse, the margins reflexed, entire or crenulate, the midlobe separated from the lateral lobes by a short isthmus with brown spots, midlobe cordate to reniform, shallowly emarginate with apicule in sinus, the margin entire or crenulate, the callosity on isthmus variable, yellow-orange with reddish-brown spots, provided with 2–4 anterior and 2–4 posterior tubercles connected by a central ridge. Column short, erect, to 5 mm long, 2 mm wide, with expanded lateral wings projecting from the apex, yellow, ligulate, the margins crenulate, to 2 mm long, 1 mm wide, anther yellow. Capsule pendent, elliptic, to 3 cm long, 2 cm thick.



Figure 1. *Oncidium floridanum* Ames. A. Flowering plant. B. Flower, frontal view. C. Sepals, petals, and labellum, frontal view.

*Oncidium floridanum* was first found in Florida by Small and Carter in 1903, between Cutler and Black Point, Dade County, Florida (Correll, 1950). It was very common in the tropical hardwood hammocks of southern Dade County and in the cypress swamps, sloughs, and hammocks of Monroe and Collier Counties.

However, the replacement of the hammocks in southern Dade County by housing developments, and collection of the orchids in hammocks outside the boundaries of the Everglades National Park, has virtually eliminated the species from these areas. *Oncidium floridanum* was also common in the Big Cypress swamp in Collier and Monroe Counties. However, drastic changes in the water flow in the Big Cypress swamp caused by diverting the natural sheet flow of water into canals to supply a burgeoning human population in southern Florida have dramatically lowered water levels and allowed fires to penetrate deep into the cypress heads and hardwood hammocks that are characteristic of this area. This orchid often grew just above the high water mark on trunks of larger cypress trees. Areas which had large numbers of this orchid, especially in the vicinity of Monument Road in Collier County, now are virtually devoid of it. Fortunately *O. floridanum* is still relatively common in the hammocks and sloughs of Everglades National Park; it is one of the most common orchids in the Bahama Archipelago and has been also reported from Cuba by Liogier (1969).

Luer (1972) and others have proposed that *Oncidium floridanum* may be conspecific with the Guatemalan species, *O. ensatum* Lindl. An examination of a photograph of the holotype of *O. ensatum* from Kew revealed that both species are vegetatively very similar but exhibit many distinct floral differences. These differences were even more evident when we examined living material from Guatemala obtained from Marvin E. Ragan of Orange Park, Florida. The sepals and petals of *O. floridanum* are yellow with brown spots, lanceolate or ovate to elliptic, narrowly acute and the margins are flat or undulate. In *O. ensatum* the sepals and petals are dark brown, broadly elliptic, subacute to abruptly acute and the margins are revolute. The isthmus of the labellum of *O. floridanum* is yellow with brown spots, in *O. ensatum* the isthmus is dark brown. The midlobe of the labellum of *O. floridanum* is cordate to reniform and concave, the midlobe of the labellum of *O. ensatum* is broadly elliptic, bilobed, and the margin is revolute. The callosity is variable in both species, however the tubercles are more numerous and thicker in *O. ensatum*.

2. ***Oncidium undulatum*** (Sw.) Salisb., Trans. Hort. Soc. London. 1: 295. 1812. Figure 2. BASIONYM: *Epidendrum undulatum* Sw., Prod. Veg. Ind. Occ. 122. 1788. TYPE: In the absence

of any material verifiable as the holotype, we here designate the Burmann plate cited by Swartz in his protologue as the neotype: *Plantarum Americanarum Fasciculus*, p. 173, t. 178, f. 2, 1758.

Plants epiphytic, rhizomatous, to 5 m tall. Roots numerous, thick, canescent to velamentous. Rhizome short, stout, ascending, enclosed by scarious imbricating sheaths. Pseudobulbs cylindrical, to 5 cm long, 4 cm thick, concealed by 3–4 imbricating sheaths, with 1 apical leaf. Leaf coriaceous, rigid, broadly oblong-elliptic to linear-elliptic, obtuse to acute, to 1.05 m long, 2.8 dm wide. Peduncle slender, erect to suberect, distantly several-sheathed, the sheaths tubular, appressed, acute, to 2 cm long. Inflorescence lateral, to 2.65 m long, racemose to paniculate above, usually with short lateral branches bearing 2–4 flowers, to 85-flowered. Floral bracts triangular-lanceolate, acute to acuminate, to 1.3 cm long. Flowers dull yellow to greenish-yellow with dark reddish-brown spots. Sepals free, clawed, the dorsal sepal spatulate to obovate, the apex rounded to obtuse, margin undulate, occasionally involute, to 1.8 cm long, 6 mm wide. Lateral sepals spatulate, to obovate, obtuse, the margin undulate, to 2 cm long, 9 mm wide. Petals clawed, to 1.8 cm long, 7 mm wide, lamina orbicular to oblong, truncate to rounded, the margin undulate-crenulate. Labellum pandurate, 3-lobed, to 2 cm long, 1.5 cm wide, lateral lobes basal, obtuse, the margins revolute, midlobe separated from lateral lobes by a short isthmus, midlobe reniform, entire to crenulate, callosity on isthmus is five fleshy lobes which are tuberculate, yellow in center with purple and white staining. Column white, stained with purple, erect, to 6 mm long, 3 mm thick, with bilobate wings at apex. Capsule ellipsoid, to 4 cm long, 2.5 cm thick.

*Oncidium undulatum* was first discovered in Florida by Eaton and Soar in 1903 (Correll, 1950) and erroneously identified first by Small (1913a) as *O. guttatum* (L.) Reichenb. f. and *O. luridum* Lindl. by Ames (1924), Correll (1950), and Luer (1972). A comparison of a photograph of the holotype of *O. luridum* (K-L) and living material of *O. luridum* from Central America, with living material of *O. undulatum* from Florida and Jamaica, unequivocally demonstrated that *O. luridum* and *O. undulatum* are not conspecific.

Vegetatively both *Oncidium undulatum* and *O. luridum* are

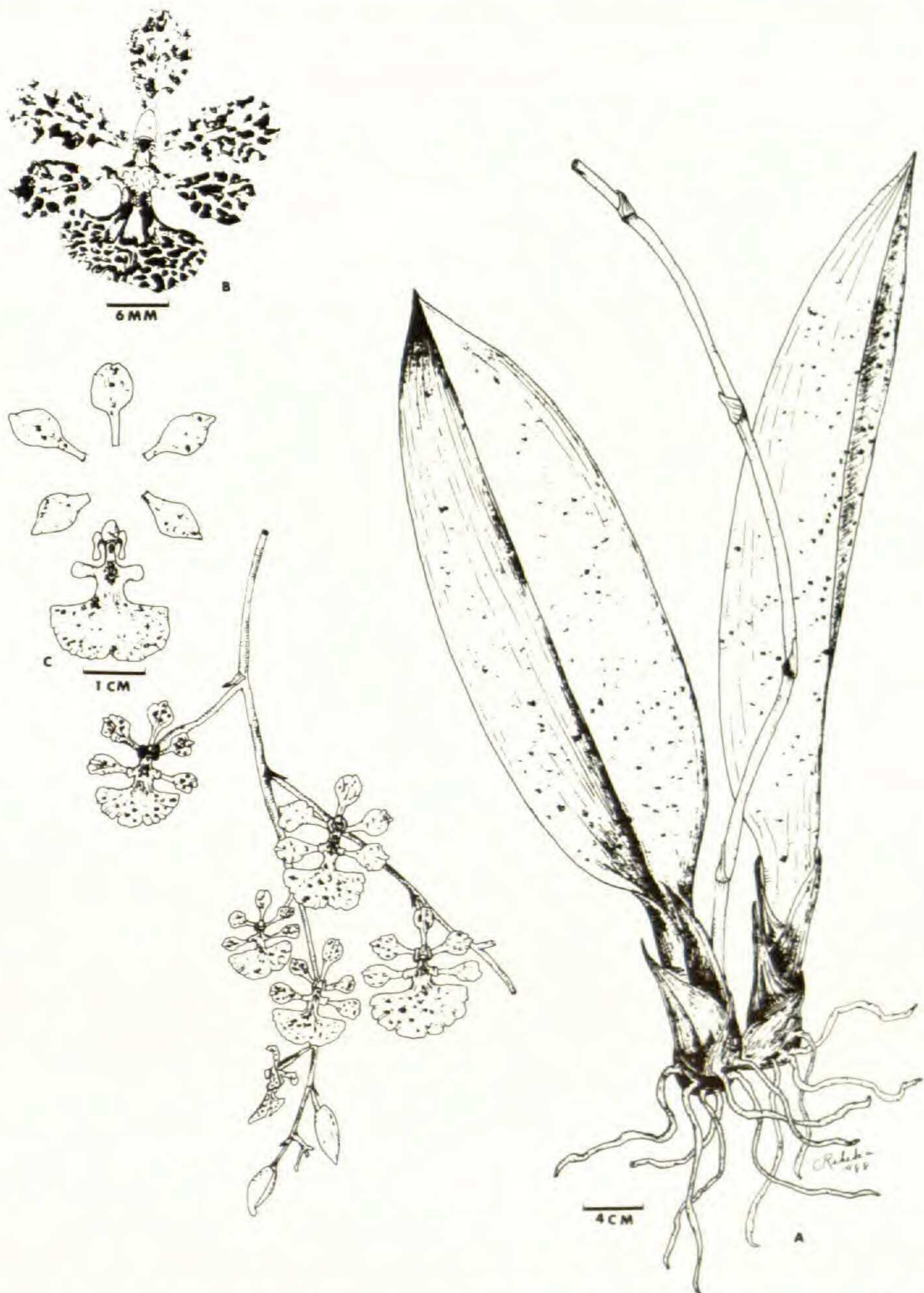


Figure 2. *Oncidium undulatum* (Sw.) Salisb. A. Flowering plant. B. Flower, frontal view. C. Sepals, petals, and labellum, frontal view.

similar, although *O. undulatum* has consistently longer and wider leaves. Florally they are very distinct. The inflorescence of *O. undulatum* is usually twice as long (up to 2.5 m long) as *O. luridum*. The flowers are also larger in *O. undulatum*. The flowers of *O. undulatum* are uniformly yellow with distinct reddish-brown spots. The flowers of *O. luridum* are a yellowish-brown with brown blotches that usually overlap and the labellum is brownish-orange

without spots. The differences in the labellum, especially the shape of the crest, are the main characters separating the two species. Both species have reniform midlobes; however, *O. luridum* is more broadly reniform, appearing elliptic, while *O. undulatum* is narrowly reniform, appearing orbicular. The margin of the midlobe of the labellum of *O. undulatum* is undulate while the margin of the labellum of *O. luridum* is flat. The callosity on the isthmus of *O. undulatum* consists of five fleshy, centrally-located, tuberculate lobes which are yellow with purple and white staining, while the callosity on *O. luridum* consists of four large, fleshy, tuberculate lobes connected by a central fleshy keel, all of which are yellow with red and white staining. The wings on the apex of the column of *O. undulatum* are broad and bilobed; the wings of *O. luridum* are narrow and not bilobed. Additionally the sepals and petals of *O. undulatum* have a long, slender claw and are spatulate to obovate, while the sepals and petals of *O. luridum* have a short claw and are obovate to broadly elliptic.

The name *Oncidium altissimum* (Jacq.) Sw. was considered an earlier name for *O. luridum* and therefore applied to the Florida population (Garay and Stacy, 1974). A careful analysis of a photograph of the specimen at BM which Jacquin had in his possession when he described *O. altissimum* and Jacquin's illustration of *O. altissimum* (Select. Stirp. Amer. Hist. 229, t. 141, 1763) clearly demonstrates that it is not conspecific with *O. luridum* or *O. undulatum*. *Oncidium luridum* and *O. undulatum* are in the section *Miltoniastrum* Reichb. f., which is characterized by plants having a single apical leaf which is broad, thick, rigid, and coriaceous. *Oncidium altissimum* is the type of the genus and is therefore in the section *Oncidium*. This section contains the bulk of the plants in the genus and is characterized by plants which have 1-3 apical leaves and 2-5 leaf-bearing sheaths which partially conceal the pseudobulb. The leaves are narrow, elongated, and linear. Most of the confusion surrounding the application of the name *O. altissimum* to the Florida population stems from Jacquin (Enum. Syst. Pl.: 30, 1760) who incorrectly cited a Sloane plate (Hist. Jam.: t. 148, f. 1, 1707) as a synonym. This plate illustrates a plant from Jamaica which represents the same species as the Florida population. The Sloane plate, however, does not represent the same species as the specimen Jacquin used to describe *O. altissimum*.

Although several names can be found in the literature which

apply to the Florida population, the earliest available name is *Oncidium undulatum* (Sw.) Salisb. When Swartz (Prod. Veg. Ind. Occ. 122, 1788) described this species as *Epidendrum undulatum*, he cited several elements including a Burmann plate (Pl. Amer. Fasc. 173, t. 178, f. 2, 1758), and the same Sloane plate Jacquin incorrectly cited as a synonym of *O. altissimum*. Sloane's description of the foliage (Hist. Jam.: 250, 1707), which is absent from both the plate and the specimen in the Sloane herbarium from which the plate was illustrated, does not match the foliage of plants from Jamaica or Florida. Although we feel that the Sloane plate probably represents *O. undulatum*, the absence of any foliage on the plate makes it a poor element upon which to base a species. The Burmann plate, however, unequivocally matches both the floral and vegetative characteristics of plants from Florida and Jamaica. After a careful search of the major herbaria in Europe we were unable to locate a specimen which Swartz may have used when describing *E. undulatum*. We are therefore designating the Burmann plate as the neotype for *Oncidium undulatum* (Sw.) Salisb.

Several authors (Ames, 1924; Correll, 1950; Luer, 1972) cited Swartz's *Epidendrum undulatum* as a synonym for *Oncidium luridum*; Luer (1972) also cited it as a synonym of *O. carthagenense*. But Swartz published the epithet *undulatum* in 1788, prior to the publication of *O. luridum* in 1823. J. K. Small (1913b, 1933) was the only author to use *O. undulatum* for the Florida population, recognizing that *O. luridum* was a distinct species.

In Florida, *Oncidium undulatum* is presently restricted to the Everglades National Park where it is locally abundant, occurring along the edges of many of the brackish creeks, small lakes, and ponds that are an integral part of most of the habitats in the southern part of the park.

3. ***Tolumnia bahamense*** (Nash ex Britt. & Millsp.) Braem, Orchidee (Hamburg) 37(2): 59. 1986. Figure 3. TYPE: Grand Bahama Island, Bahama Islands, *Brace 3689* (HOLOTYPE: NY; ISOTYPES: F, US).

Plants epiphytic or terrestrial, rhizomatous, to 6.5 dm tall. Roots numerous, slender, canescent to velamentous. Rhizome stoloniferous, repent, decumbent, wiry, remotely several-sheathed, the sheaths scarious, ovate-triangular, acute, to 1.1 cm long, 4 mm



wide. Pseudobulbs remotely produced, to 1.2 dm apart, to 9 mm long, 4 mm wide, flattened, completely enclosed by 5–10 distichous leaves. Leaves coriaceous, distichous, imbricated, produced at intervals along pseudobulb, olive-green to bronzy-purple, conduplicate, recurved, lanceolate, acute, to 1.4 dm long, 8 mm wide, the margins cartilaginous and serrulate. Penduncle slender, erect, distantly several-sheathed. Inflorescence lateral, to 6.4 dm tall, racemose or rarely paniculate above, to 25-flowered. Floral bracts minute, lanceolate, acute, to 2 mm long, 1 mm wide. Ovary pedicellate, slender, to 1.8 cm long. Sepals white to greenish-white, basal  $\frac{2}{3}$  with reddish-brown spots; the dorsal sepal spatulate, basally clawed to attenuate, concave, emarginate, acute or apiculate, to 4 mm long, 2 mm wide. Lateral sepals oblanceolate, concave, acute, connate nearly to apex, to 5 mm long, 3 mm wide. Petals white to greenish-white, basal  $\frac{1}{2}$  with reddish-brown spots or bars, spatulate to ligulate, basally clawed to attenuate, concave, acute, the margins undulate, to 6 mm long, 3 mm wide. Labellum three-lobed, white, occasionally with pink tint, to 1.2 cm long, 1.5 cm wide, the lateral lobes basal, linear-elliptic to orbicular, obtuse to broadly rounded, reflexed, margin irregularly crenulate, the midlobe separated from the lateral lobes by a short isthmus with brown spots, the midlobe reniform, cordate or broadly obovate, deeply emarginate, usually with an apicule in the sinus, the margin irregularly crenulate, the callosity on isthmus variable, yellow-orange with reddish-brown spots, usually provided with two anterior and three larger posterior tubercles. Column stout, erect, to 3 mm long, 2 mm wide, with expanded lateral wings projecting from apex, white or pink, ovate, base obtuse, apex acute, irregularly lobed, to 1.1 mm long, 0.6 mm wide, anther white, apex purplish-brown. Capsule pendent, to 1.5 cm long, 8 mm wide.

The genus *Oncidium* is divided into several clearly defined sections. Although the flowers of all oncidiums are very similar, thereby making sectional distinction using floral characteristics very difficult, vegetatively the sections are distinct. In addition, the sections have different chromosome numbers. These differences, together with their strictly Caribbean distribution, were the basis for the elevation of the section containing *Oncidium bahamense* to generic level (Braem, 1986). The earliest name available for the new genus was *Tolumnia* Raf.

*Tolumnia bahamense* was first discovered in Florida in 1904

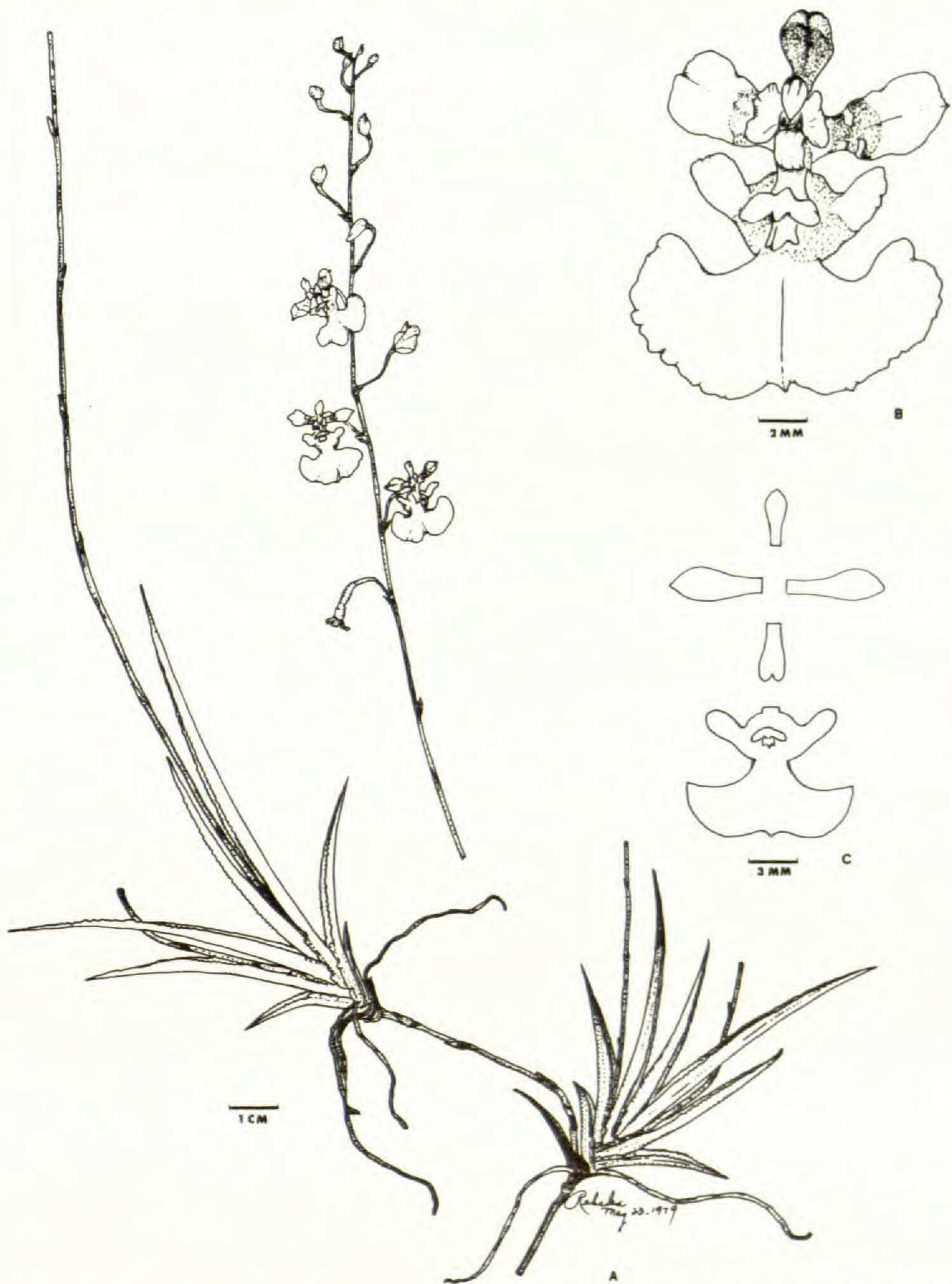


Figure 3. *Tolumnia bahamense* (Nash ex Britt. & Millsp.) Braem. A. Flowering plant. B. Flower, frontal view. C. Sepals, petals, and labellum, frontal view.

(Correll, 1950) and misidentified by several authors as *Oncidium variegatum* Sw. (Ames, 1905, 1924; Small, 1933; Correll, 1950). For many years the correct identification of this species was obscured by additional misidentifications by Moir (1962), until Luer (1972) finally established the correct epithet *bahamense*.

*Tolumnia bahamense* occurs in Martin and Palm Beach Coun-

ties. The largest population occurred in the xeric acid pine scrub surrounding the old Jupiter cemetery on County Line Road, which separates Palm Beach and Martin Counties. This area has been almost completely developed, leaving only a few isolated acres where several plants survive. However, these few remaining acres are in imminent danger of being cleared. A second large population once existed in the scrub, growing on the sand dunes just east of US 1 in southern Martin County. This population has been decimated by home-builders, by orchid collectors, and by periodic fires, and is now virtually extirpated. However, in the early 1960's a large number of plants were saved from destruction by transplantation from the cemetery area to three areas within the boundaries of Jonathan Dickinson State Park (Sauleda, 1986). Recently two populations have been discovered within the park. Apparently the transplanted plants have survived and established viable populations in an area where they will be safe from habitat destruction and orchid collectors.

The restricted distribution of *Tolumnia bahamense* in Florida, combined with the fact that it has a wide distribution in the Bahama archipelago, suggests that it may have been introduced into Florida (Sauleda and Adams, 1981). The Florida population occurs within approximately 120 km of the closest Bahamian population. While dispersal from the Bahama Islands to Florida may have been by natural means—storms, for example—it is more probable that Bahamian fishermen brought plants from the Islands and planted them on the graves of fellow fishermen buried in the Jupiter cemetery. The cemetery contains several headstones with names which are thought to be Bahamian.

*Tolumnia bahamense* flowers in April and May and can be detected in its natural habitat by its strong fragrance. It is one of the few *tolumnias* with fragrant flowers.

***Oncidium carthagenense*** (Jacq.) Sw., Handl. Kongl. Svensk. Vetensk. Acad. 21: 240. 1800.

*Oncidium carthagenense* was reported in Florida (Correll, 1950; Luer, 1972) based upon a single specimen collected by J. K. Small in 1916. The collection locality, cited on the herbarium specimen at NY, is Coot Bay, Florida. After numerous trips to the Coot Bay area, during which careful searches were made, we were unable to locate any plants of this species. Therefore, we conclude

that this species does not occur in Florida. This conclusion is further supported by the fact that *O. carthagenense* had not been collected prior to the Small collection nor has it been collected since. The Small specimen does not have any foliage, and consists only of a partial inflorescence. It is likely that Small made this specimen from a plant in cultivation at the Deering Estate in southern Florida, where he kept many of the plants he collected until they flowered. Small also routinely grew plants sent to him from Central America at the Deering Estate. We are convinced that Small made the specimen, now at NY, from a plant he mistakenly believed was collected in Florida but which was actually collected in Central America. For these reasons we are excluding this species from the flora of Florida.

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